



Heywow - Enjoyable Mobile Commerce

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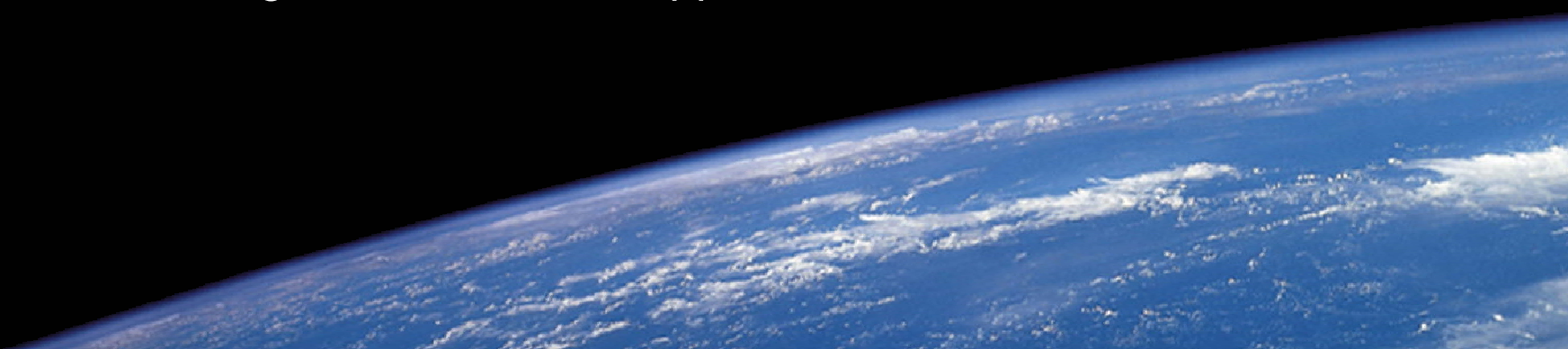




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explores new dimensions in researching the earth and the universe,
in conserving the environment and in mobility, communication and
security

builds bridges to link basic research and future-oriented
technologies to innovative applications





heywow

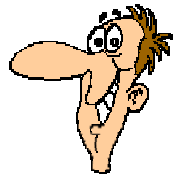


heywow



Basic Needs on the Move

Where is
terminal A16?



I am hungry!



Where am I?



The bill,
please!



How will the
weather be?



I need a hotel!



heywow



It's not about Mobile Internet Browsing!

For Mobile Internet

***anywhere, anytime,
on any device¹***

is still the dominating
paradigm

Simple „copy and paste“
of classic WWW does
create only limited value
for the user

Heywow strongly
emphasizes the basic
„4R“ rule.

¹frequently „at any cost“





The „4R“ rule

The ***right*** Service,
for the ***right*** Person,
on the ***right*** Time,
at the ***right*** Place

The system shall be adaptive to the person's situation.
Not vice versa!



„Ease of Use“ puts the Strain on Technology

If easy usage of services is a design goal, the system **has to know** a lot about the user's **situation**

If extremely high **availability** of services is a design goal, the software has to **adapt** to different types of connections, including the „no-connection“

The same is true for achieving **cost efficiency** (Don't expect wireless network costs to come near costs in fixed networks !)

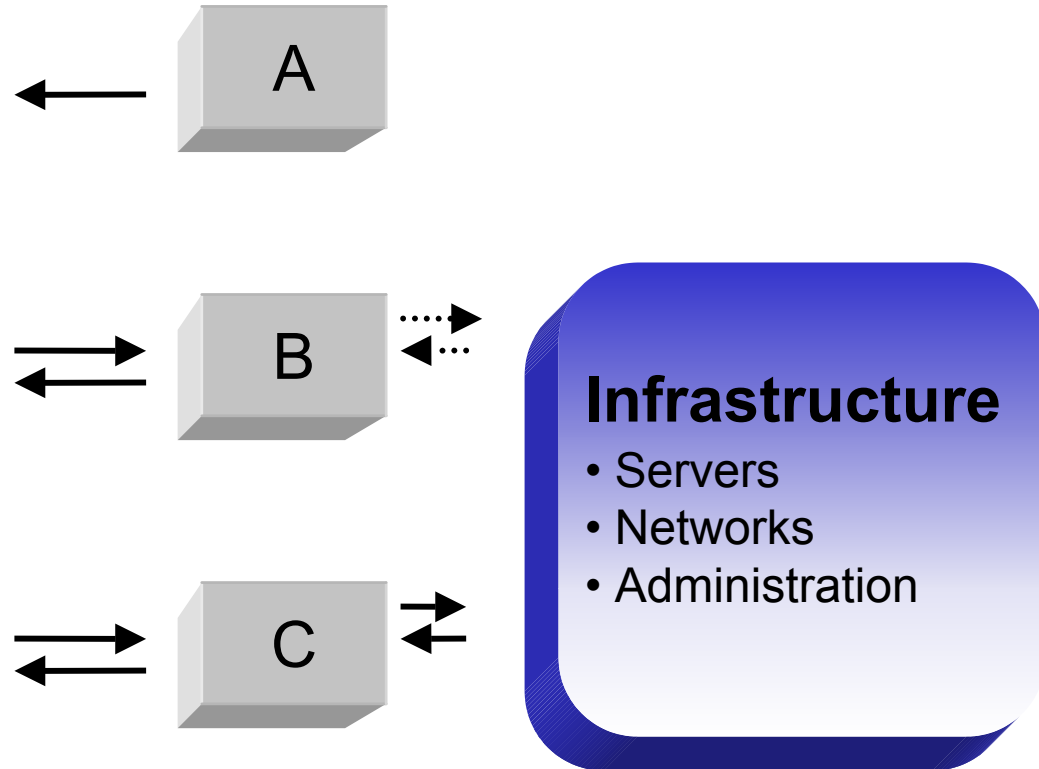


Physical System Components

- **WID:** Wireless Information Device (typically mobile phone, PDA or their successors)
- **LSP:** Local Service Points, give access at low cost and high bandwidth, inherent location awareness
- **GSP:** Global Service Points, cover what LSPs don't
- **Networks:** Mobile Networks (GSM, GPRS, IS-95, UMTS, etc.) and Fixed Networks (LANs, WANs, PSTN, etc.)

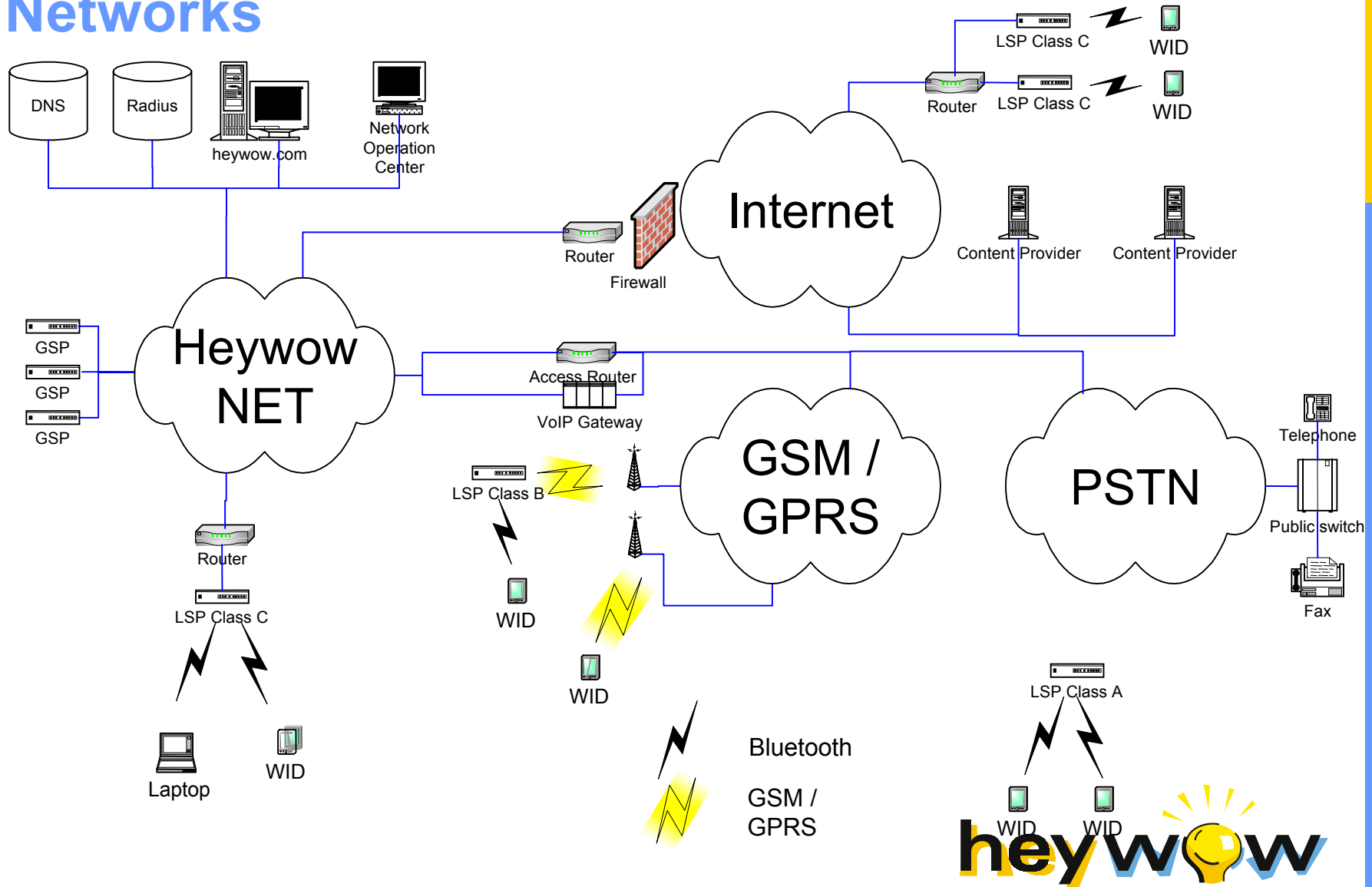


Local Service Point (LSP)





Networks





Connecting WIDs and LSPs - Bluetooth

- Versatile radio interface
- Developed to replace cables between devices
- Range: 10..100 meter
- Low power consumption: 0.1 Watt (active)
- Data rate: 700 kbps
- Low target price for module: 5\$





Integrating Bluetooth into Small Devices - Software Perspective

- Bluetooth is becoming the dominant interface on mobile phones
- Currently a gap between Application Platform on the device and the Bluetooth connection exists
- To fully employ the possibilities of Bluetooth this gap must be bridged
- Devices like mobile phones are equipped with a Java VM. Typically this is the MIDP (Mobile Information Device Profile)



Integrating Bluetooth into Small Devices - Software Perspective

- A Java API for Bluetooth is under development
- JSR-82 targeted at devices characterized as follows:
 - ↳ 512 K minimum total memory available
 - ↳ Bluetooth network connection
 - ↳ Compliant implementation of the J2ME Connected Limited Device Configuration (CLDC)



Electric Lighting, a Role Model and More

- August, 27th. 1878 Thomas A. Edison started experimenting with electric light
- At that time, the necessary infrastructure (generators, conductors) barely existed
- Electric lighting became the most pervasive technology of the 20th century
- Today we can even use the existing lighting infrastructure to make „electronic light“ the pervasive technology of the 21st century

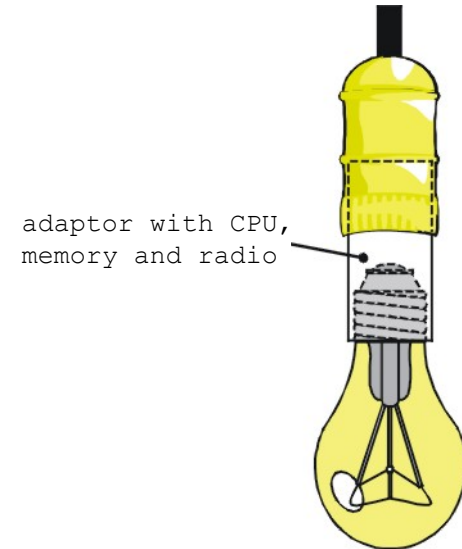


Fig. 1



Inherent Location Awareness

- Shortrange Radio provides inherent location awareness - „location awareness by physical definition“ (John Gage, Sun Microsystems)
- Relevant content is frequently local
- Local Service Points (LSPs) are
 - ↳ easy to install („Smartbulb“)
 - ↳ cheap
 - ↳ transparent for the user, not for the system!
 - ↳ can provide communication capacity and content conveniently and cost efficiently





Smart Caching, the Uninterruptable Power Source of Network Applications

- Basic assumption:
 - ↳ In the mobile world, network connections are ***sometimes*** available
- Design goals are:
 - ↳ always use optimal network connection, depending on urgency, network costs and availability
 - ↳ allow for continued service, even without connection („no-connection“),
 - ↳ work transparently for the user



Object Repository (OR)

- Building block for smart caching
- Current experimental prototypes with asynchronous protocol put on top of HTTP
- Currently working on a reference implementation in Java
 - ↳ We try to have the same code running on all devices (WID, LSP, GSP)
 - ↳ Some modification are necessary on MIDP-devices
- Implementations of the protocol are not restricted to Java (in fact, the protocols can be implemented with standard HTTP-server and CGIs)
- ORs can easily join and leave the system („easy come, easy go“)
- Any data-object can be handled (.class files, jpg, mp3, html etc.)
- Classloader for java-microservices



What is Heywow ?

- {Wireless, Mobile, m-Commerce} x {Peer-to-peer, Internet, Service } x {Platform, Architecture, Solution, Research Project} x {...} ?
- Sorry, I don't know.
- To us, it's an idea, and a bunch of people having fun to make this idea **work**.
- Everybody who shares this idea is welcome to join!





Acknowledgements

- Heywow would not be possible without:
 - ↳ the early moral and technical support by Sun Microsystems
 - ↳ funding by the High Tech Initiative of the State of Bavaria
 - ↳ a working project partnership of DLR, FZI Karlsruhe, Sony International, Sun Microsystems, Technical University of Munich, Xtend and Yadastar





Invitation

- Technically oriented showcases around Sept./Okt. (targeted at interested developers)
- Showcases with public visibility are targeted for mid-2002.
- If you are interested in getting in contact with us, send an e-mail to info@heywow.com
- Please also see: **www.heywow.com**

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